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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,735	11/17/2003	Robert Eugene Handfield JR.	PC23270A	4671
23913	7590	03/21/2006	EXAMINER	
PFIZER INC 150 EAST 42ND STREET 5TH FLOOR - STOP 49 NEW YORK, NY 10017-5612			OH, TAYLOR V	
			ART UNIT	PAPER NUMBER
			1625	

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/714,735

Applicant(s)

HANDFIELD ET AL.

Examiner

Taylor Victor Oh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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Applicant's arguments with respect to claims 1 and 3-17 have been considered but are moot in view of the new ground(s) of rejection.

The Status of Claims

Claims 1 and 3-17 are pending.

Claims 1 and 3-17 have been rejected.

**DETAILED ACTION**

1. Claims 1 and 3-17 are under consideration in this Office Action.

**Priority**

2. It is noted that this application claims benefit of 60/429,029 filed on 11/25/02.

**Drawings**

3. None.

Claims 11, 15, and 17 are objected to because of the following informalities:

In claims 11 and 15, the chemical name "3-[1,3]dioxolan-2-yliden-3H-1-carbonitrile" is recited. The part of the chemical name "2-yliden" is mis-spelled.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3 and 5-9 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a metal catalyst for a mixture of palladium II acetate, tricyclohexylphosphine, and base, does not reasonably provide enablement for all the catalysts in the organic chemistry in the art. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to include all the catalyst unrelated to the current invention commensurate in scope with these claims.

Furthermore, the instant specification fails to provide information that would allow the skilled artisan to practice the instant invention without **undue experimentation**. Attention is directed to *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 where the court set forth the eight factors to consider when assessing if a disclosure would have required undue experimentation, citing *Ex Parte Forman*, 230 USPQ 546 (BdApls 1986) at 547 the court recited eight factors:

- 1) the quantity of experimentation necessary,
- 2) the amount of direction or guidance provided,
- 3) the presence or absence of working examples,
- 4) the nature of the invention,
- 5) the state of the prior art,
- 6) the relative skill of those in the art,

- 7) the predictability of the art, and
- 8) the breath of the claims.

In the instant case, the claim encompasses various catalysts. However, applicants' specification provide no particular exemplified catalyst compound except the mixture of palladium II acetate, tricyclohexylphosphine ,and base. Furthermore, the catalyst compositions represent an unpredictable aspect in the art of organic chemistry . See *Exparte Sizto*, 9 USPQ2d 2081 (Bd. Of App. And Inter. March 1988). Thus, the specification herein has failed to provide sufficient working examples to support the use of all various catalysts. Therefore, an appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-4, 6-9, 11-13, 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated clearly by Singer (US2003/0060624 A).

Singer discloses the preparation of 3-[1,3]dioxolan-2ylidene-3H-1-carbonitrile below (see col. 26 ,paragraph 0214) :

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[0214] A solution of tricyclohexylphosphine (536 mg, 1.91 mmol) in tetrahydrofuran (25 mL) was charged with palladium (II) acetate (287 mg, 1.27 mmol) under nitrogen. After 1 hour the reaction mixture was cooled to 0° C. and charged with sodium tert-butoxide (31.6 g, 319 mmol). After 5 minutes a solution of 2-bromo-phenylacetonitrile (25.0 g, 128 mmol) and  $\beta$ -ethoxyacrylic acid ethyl ester (18.4 mL, 128 mmol) in tetrahydrofuran (75 mL) was added dropwise over 15 minutes. The reaction was heated to 60° C. After 2 hours 30 minutes the reaction mixture was cooled to room temperature and charged with ethylene glycol (200 mL) over 5 minutes and then charged with sulfuric acid (18.8 M, 36 mL) added dropwise over 15 minutes. After 15 hours the reaction was diluted with water (90 mL) and a solid product was filtered through a glass frit. The solid was dried under vacuum affording 3-[1,3]dioxolan-2-ylidene-3H-indene-1-carbonitrile (21.6 g, 102 mmol, 80%) as a light tan solid. The crude material was slurried in isopropanol (50 mL) for 2 hours, filtered and dried under vacuum affording 3-[1,3]dioxolan-2-ylidene-3H-indene-1-carbonitrile (20.8 g, 98.5 mmol, 77%) as a light tan solid. <sup>1</sup>H NMR (400 MHz, d<sub>6</sub>-DMSO)  $\delta$  7.75 (s, 1H), 7.74 (d, 1H, J=7.9), 7.50 (d, 1H, J=7.1), 7.22 (m, 2H), 4.97 (t, 2H, J=7.8), 4.85 (t, 2H, J=7.8); <sup>13</sup>C NMR (100 MHz, d<sub>6</sub>-DMSO) 167.4, 136.7, 135.7, 133.1, 124.7, 123.9, 121.1, 119.4, 118.1, 97.8, 92.7, 71.1, 69.9; mp (decomposition) 228° C.

This is identical with the claims.

### ***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 and 3-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singer (US2003/0060624 A).

Singer discloses the preparation of 3-[1,3]dioxolan-2ylidene-3H-1-carbonitrile below (see col. 26 ,paragraph 0214) :

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[0214] A solution of tricyclohexylphosphine (536 mg, 1.91 mmol) in tetrahydrofuran (25 mL) was charged with palladium (II) acetate (287 mg, 1.27 mmol) under nitrogen. After 1 hour the reaction mixture was cooled to 0° C. and charged with sodium tert-butoxide (31.6 g, 319 mmol). After 5 minutes a solution of 2-bromo-phenylacetonitrile (25.0 g, 128 mmol) and  $\beta$ -ethoxyacrylic acid ethyl ester (18.4 mL, 128 mmol) in tetrahydrofuran (75 mL) was added dropwise over 15 minutes. The reaction was heated to 60° C. After 2 hours 30 minutes the reaction mixture was cooled to room temperature and charged with ethylene glycol (200 mL) over 5 minutes and then charged with sulfuric acid (18.8 M, 36 mL) added dropwise over 15 minutes. After 15 hours the reaction was diluted with water (90 mL) and a solid product was filtered through a glass frit. The solid was dried under vacuum affording 3-[1,3]dioxolan-2-ylidene-3H-indene-1-carbonitrile (21.6 g, 102 mmol, 80%) as a light tan solid. The crude material was slurried in isopropanol (50 mL) for 2 hours, filtered and dried under vacuum affording 3-[1,3]dioxolan-2-ylidene-3H-indene-1-carbonitrile (20.8 g, 98.5 mmol, 77%) as a light tan solid. <sup>1</sup>H NMR (400 MHz, d<sub>6</sub>-DMSO)  $\delta$  7.75 (s, 1H), 7.74 (d, 1H, J=7.9), 7.50 (d, 1H, J=7.1), 7.22 (m, 2H), 4.97 (t, 2H, J=7.8), 4.85 (t, 2H, J=7.8); <sup>13</sup>C NMR (100 MHz, d<sub>6</sub>-DMSO) 167.4, 136.7, 135.7, 133.1, 124.7, 123.9, 121.1, 119.4, 118.1, 97.8, 92.7, 71.1, 69.9; mp (decomposition) 228° C.

However, the instant invention differs from the prior art in that the use of ammonium hydroxide is not exemplified; the removal of the solvent by the distillation is not disclosed.

With respect to the removal of the solvent by the distillation, it is well-known in the art that the distillation process is a common practice in any organic synthesis. Therefore, it would have been obvious to the skilled artisan in the art to be motivated to use the distillation process in the prior art process so as to remove the solvent in the reaction medium rapidly as possible. This is because the skilled artisan in the art



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would expect such a manipulation to be feasible and successful since its application is well-known in the art.

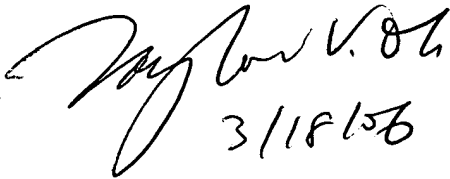
Regarding the use of ammonium hydroxide as a base in the example, the prior art does mention that the reaction with alkali or alkaline earth metal or ammonium hydroxide or carbonate is generally in an aqueous alcohol or tetrahydrofuran at a temperature from room temperature to 70<sup>0</sup> C. (see col. 17 , lines 8-12); the base can be selected from the group of sodium carbonate ,sodium t-butoxide in a solvent such as tetrahydrofuran (see col. 11, paragraph #0129 , lines 14-20). From these teachings, there is a teaching of equivalence between ammonium hydroxide and sodium t-butoxide as the base in the process. Therefore, it would have been obvious to the skilled artisan in the art to be motivated to use ammonium hydroxide as an alternative base. This is because the skilled artisan in the art would expect such a modification to be feasible and successful as guidance shown in the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 571-272-0689. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on 571-272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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3/18/06